

**WHAT IS CLAIMED IS:**

1. A method for providing a discovery service in a peer-to-peer network, the method comprising:

5

a peer group name server receiving information about a peer group, wherein the peer group comprises one or more peers as member peers of the peer group, wherein the one or more peers reside on one or more network nodes coupled to the network; and

10

the peer group name server storing the received information about the peer group;

wherein the information about the peer group stored on the peer group name server is accessible to entities on the network through the peer group name server to discover the peer group.

15

2. The method as recited in claim 1, wherein the information about the peer group includes information configured for use by the entities in joining the peer group.

3. The method as recited in claim 1, wherein the information about the peer group includes a peer group name of the peer group and a peer group identifier of the peer group.

20

4. The method as recited in claim 1, further comprising:

25

the peer group name server receiving information about the one or more member peers of the peer group; and

the peer group name server storing the received information about the one or more member peers of the peer group;

30

5 wherein the information about the one or more member peers stored on the peer group name server is accessible to entities on the network through the peer group name server to discover the one or more member peers of the peer group.

10 5. The method as recited in claim 4, wherein the information about each of the one or more member peers of the peer group includes a peer name of the particular peer and a peer identifier of the particular peer.

10 6. The method as recited in claim 4, wherein the information about each of the one or more member peers includes information configured for use in accessing the particular member peer to communicate directly with the particular member peer via the network.

15 7. The method as recited in claim 1, wherein the peer group name server is a member peer of the peer group.

20 8. The method as recited in claim 1, further comprising:  
the peer group name server receiving information about one or more other peer groups each comprising one or more member peers; and

the peer group name server storing the received information about the one or more other peer groups;

25 wherein the information about the one or more other peer groups stored on the peer group name server is accessible to the entities on the network through the peer group name server to discover the one or more peer groups.

9. The method as recited in claim 1, wherein the peer group name server further comprises information about another peer group name server, wherein the other peer group name server comprises information about one or more other peer groups each comprising one or more peers as members of the particular peer group, wherein the  
5 information about the one or more other peer groups stored on the other peer group name server is accessible to the entities on the network through the peer group name server to discover the one or more other peer groups.

10. The method as recited in claim 1, wherein the peer group name server is  
10 configured to operate in accordance with a peer-to-peer platform in the peer-to-peer network, wherein the peer-to-peer platform includes one or more protocols configured for use in communications among peers participating in the peer-to-peer network, and wherein the peer-to-peer platform further includes one or more policies that define rules and conventions for the peers participating in the peer-to-peer network.

11. A method for discovery in a peer-to-peer network, the method comprising:

accessing a peer group name server coupled to a network, wherein the peer group  
20 name server comprises information about a peer group comprising one or more peers as member peers of the peer group, wherein the one or more peers reside on one or more network nodes coupled to the network; and

discovering the peer group from the information about the peer group on the peer  
25 group name server;

wherein the information about the peer group includes information configured for  
use in joining the peer group.

12. The method as recited in claim 11, wherein the information about the peer group includes a peer group name of the peer group and a peer group identifier of the peer group.

5 13. The method as recited in claim 11, further comprising joining the discovered peer group to become a member peer of the peer group.

14. The method as recited in claim 13, wherein said accessing, said discovering, said selecting, and said joining are initiated from a process executing within a first network  
10 node, and wherein the process becomes the member peer of the peer group.

15. The method as recited in claim 14, wherein the first network node comprises information about the peer group name server, wherein the information about the peer group name server includes information configured for use in said accessing the peer  
15 group name server, the method further comprising:

the process accessing the information about the peer group name server prior to  
said accessing the peer group name server;

20 wherein the process uses the information about the peer group name server in said  
accessing the peer group name server.

16. The method as recited in claim 13, further comprising:  
25 prior to said accessing the peer group name server:

the process broadcasting a discovery message on the network; and

the peer group name server sending a response message to the process in  
30 response to the discovery message;

wherein the response message includes access information for the peer group name server, wherein the process uses the access information for the peer group name server from the response message in said accessing the peer group name server.

5

17. The method as recited in claim 13, further comprising amending the information about the peer group on the peer group name server to indicate that the peer is a member peer of the peer group in response to said joining the peer group.

10

18. The method as recited in claim 13, further comprising:

the peer leaving the peer group; and

15

amending the information about the peer group on the peer group name server to indicate that the peer is no longer a member peer of the peer group in response to said leaving.

19. The method as recited in claim 11, wherein the peer group name server further comprises information about the one or more member peers of the peer group.

20

20. The method as recited in claim 19, wherein the information about each of the one or more member peers of the peer group includes a peer name of the particular peer and a peer identifier of the particular peer.

25

21. The method as recited in claim 19, further comprising discovering the one or more member peers of the peer group from the information about the one or more member peers of the peer group on the peer group name server.

22. The method as recited in claim 19, wherein the information about each of the one or more member peers includes information configured for use in accessing the particular member peer to communicate directly with the particular member peer via the network.

5 23. The method as recited in claim 22, further comprising accessing a first member peer of the one or more member peers of the peer group using the information about the first member peer.

24. The method as recited in claim 11, wherein the peer group name server is a  
10 member peer of the peer group.

25. The method as recited in claim 11, wherein the peer group name server further comprises information about a plurality of peer groups each comprising one or more peers as members of the particular peer group, wherein the peer group is one of the  
15 plurality of peer groups.

26. The method as recited in claim 25, wherein said discovering discovers the plurality of peer groups from the information about the plurality of peer groups on the peer group name server.  
20

27. The method as recited in claim 26, further comprising:

selecting the peer group from the discovered plurality of peer groups; and

25 joining the selected peer group as a member peer of the peer group.

28. The method as recited in claim 11, wherein the peer group name server further comprises information about another peer group name server, wherein the other peer group name server comprises information about one or more other peer groups each  
30 comprising one or more peers as members of the particular peer group.

29. The method as recited in claim 28, wherein said discovering comprises discovering through the peer group name server the one or more other peer groups from the information about the one or more other peer groups on the other peer group name  
5 server.

30. The method as recited in claim 11, wherein the peer group name server is configured to operate in accordance with a peer-to-peer platform in the peer-to-peer network, wherein the peer-to-peer platform includes one or more protocols configured for  
10 use in communications among peers participating in the peer-to-peer network, and wherein the peer-to-peer platform further includes one or more policies that define rules and conventions for the peers participating in the peer-to-peer network.

31. A method for providing name resolution in a peer-to-peer network, the method comprising:

a first peer in the peer-to-peer network accessing a peer group name server in the peer-to-peer network, wherein the peer group name server comprises  
20 information about one or more entities in the peer-to-peer network, wherein the information comprises, for each of the one or more entities, a symbolic name and an associated entity identifier of the entity, wherein the entity identifier is configured for use in establishing a connection with the particular entity in the peer-to-peer network;

25 the first peer sending a symbolic name of an entity to the peer group name server;

the peer group name server locating a copy of the symbolic name in the information about the one or more entities to determine an entity identifier  
30 associated with the symbolic name; and

the peer group name server sending the entity identifier associated with the symbolic name to the first peer.

5 32. The method as recited in claim 31, wherein the symbolic name is a peer name of a second peer, and wherein the entity identifier sent to the first peer is a peer identifier for the second peer.

33. The method as recited in claim 32, further comprising the first peer establishing a  
10 peer-to-peer connection with the second peer using the peer identifier for the second peer.

34. The method as recited in claim 31, wherein the symbolic name is a peer group name, and wherein the entity identifier sent to the first peer is a peer group identifier for the peer group with the peer group name.  
15

35. The method as recited in claim 34, further comprising the first peer joining the peer group using the peer group identifier.

36. The method as recited in claim 31, wherein the peer group name server is  
20 configured to operate in accordance with a peer-to-peer platform in the peer-to-peer network, wherein the peer-to-peer platform includes one or more protocols configured for use in communications among peers participating in the peer-to-peer network, and wherein the peer-to-peer platform further includes one or more policies that define rules and conventions for the peers participating in the peer-to-peer network.  
25

37. A peer group name server comprising:

a processor;

30



a port operable to couple the device to a network;

a memory operable to store program instructions, wherein the program instructions are executable by the processor to:

5

receive via the network information about a peer group, wherein the peer group comprises one or more peers as member peers of the peer group, wherein the one or more peers reside on one or more network nodes coupled to the network; and

10

store the received information about the peer group on the peer group name server;

15

wherein the information about the peer group stored on the peer group name server is accessible to entities on the network through the peer group name server to discover the peer group.

38. The peer group name server as recited in claim 37, wherein the information about the peer group includes information configured for use in joining the peer group.

20

39. The peer group name server as recited in claim 37, wherein the information about the peer group includes a peer group name of the peer group and a peer group identifier of the peer group.

25

40. The peer group name server as recited in claim 37, wherein the program instructions are further executable by the processor to:

receive via the network information about the one or more member peers of the peer group; and

30

store the received information about the one or more member peers of the peer group on the peer group name server;

wherein the information about the one or more member peers stored on the peer group name server is accessible to entities on the network through the peer group name server to discover the one or more member peers of the peer group.

41. The peer group name server as recited in claim 40, wherein the information about each of the one or more member peers of the peer group includes a peer name of the particular peer and a peer identifier of the particular peer.

42. The peer group name server as recited in claim 40, wherein the information about each of the one or more member peers includes information configured for use in accessing the particular member peer to communicate directly with the particular member peer via the network.

43. The peer group name server as recited in claim 37, wherein the program instructions are further executable by the processor to:

receive via the network information about one or more other peer groups each comprising one or more member peers; and

store the received information about the one or more other peer groups on the peer group name server;

wherein the information about the one or more other peer groups stored on the peer group name server is accessible to the entities on the network through the peer group name server to discover the one or more peer groups.

44. A system comprising:

5 a peer group comprising one or more peers as member peers of the peer group,  
wherein the one or more peers are configured to execute on one or more  
network nodes coupled to a network;

10 a peer group name server coupled to the network, wherein the peer group name  
server is operable to store information about the peer group;

15 a network node coupled to the network, wherein the network node comprises a  
process executable within the network node to:

access the peer group name server via the network; and

20 discover the peer group from the stored information on the peer group  
name server;

25 wherein the information about the peer group stored on the peer group name  
server includes information configured for use by the process in joining  
the peer group as a member peer.

45. The system as recited in claim 44, wherein the information about the peer group  
includes a peer group name of the peer group and a peer group identifier of the peer  
group.

46. The system as recited in claim 44, wherein the process is further executable within  
the network node to join the discovered peer group as a member peer of the peer group.

47. The system as recited in claim 46, wherein the peer group name server is operable to amend the information about the peer group stored on the peer group name server to indicate that the process has joined as a member peer of the peer group.

5 48. The system as recited in claim 44, wherein the peer group name server is further operable to store information about the one or more member peers of the peer group, wherein the information about each of the one or more member peers includes information configured for use in accessing the particular member peer to communicate directly with the particular member peer via the network

10

49. The system as recited in claim 48, wherein the information about each of the one or more member peers of the peer group includes a peer name of the particular peer and a peer identifier of the particular peer.

15 50. The system as recited in claim 48, wherein the process is further executable within the network node to discover the one or more member peers of the peer group from the information about the one or more member peers of the peer group stored on the peer group name server.

20 51. The system as recited in claim 50, wherein the process is further executable within the network node to access a first member peer of the one or more member peers of the peer group using the information about the first member peer.

52. The system as recited in claim 44, wherein the peer group name server is a  
25 member peer of the peer group.

53. The system as recited in claim 44, wherein the peer group name server is further operable to store information about a plurality of peer groups each comprising one or more peers as members of the particular peer group, wherein the peer group is one of the  
30 plurality of peer groups.

54. The system as recited in claim 53, wherein, in said discovering, the process is further executable within the network node to discover the plurality of peer groups from the information about the plurality of peer groups on the peer group name server.

5

55. The system as recited in claim 54, wherein the process is further executable within the network node to:

select the peer group from the discovered plurality of peer groups; and

10

join the selected peer group as a member peer of the peer group.

56. The system as recited in claim 44, wherein the peer group name server is further operable to store information about another peer group name server, wherein the other peer group name server is operable to store information about one or more other peer groups each comprising one or more peers as members of the particular peer group.

15

57. The system as recited in claim 56, wherein, in said discovering, the process is further executable within the network node to discover through the peer group name server the one or more other peer groups from the information about the one or more other peer groups on the other peer group name server.

20

58. A peer-to-peer network comprising:

25

one or more peers, wherein the one or more peers are configured to execute on one or more network nodes coupled to the peer-to-peer network;

a peer group name server coupled to the peer-to-peer network, wherein the peer group name server is operable to store information about one or more

30

entities in the peer-to-peer network including the one or more peers,  
wherein the information comprises, for each of the one or more entities, a  
symbolic name and an associated entity identifier of the entity, wherein the  
entity identifier is configured for use in establishing a connection with the  
particular entity in the peer-to-peer network;

wherein the peer group name server is operable to:

receive a symbolic name of a first entity from a first peer of the one or  
more peers;

locate a copy of the symbolic name in the information about the one or  
more entities to determine an entity identifier associated with the  
symbolic name; and

send the entity identifier associated with the symbolic name to the first  
peer.

59. The peer-to-peer network as recited in claim 58, wherein the symbolic name is a  
peer name of a second peer of the one or more peers, wherein the entity identifier sent to  
the first peer is a peer identifier for the second peer, and wherein the first peer is  
configured to establish a peer-to-peer connection with the second peer using the peer  
identifier for the second peer.

60. The peer-to-peer network as recited in claim 58, wherein the symbolic name is a  
peer group name, wherein the entity identifier sent to the first peer is a peer group  
identifier for the peer group with the peer group name, wherein the peer group comprises  
one or more of the one or more peers, and wherein the first peer is configured to join the  
peer group using the peer group identifier.

61. A carrier medium comprising program instructions, wherein the program instructions are computer-executable to implement:

5 receiving information about a peer group, wherein the peer group comprises one or more peers as member peers of the peer group, wherein the one or more peers reside on one or more network nodes coupled to a network; and

storing the received information about the peer group;

10

wherein the stored information about the peer group is accessible by entities on the network to discover the peer group.

62. The carrier medium as recited in claim 61, wherein the information about the peer group includes information configured for use by the entities in joining the peer group.

15

63. The carrier medium as recited in claim 61, wherein the program instructions are computer-executable to implement:

20 receiving information about the one or more member peers of the peer group; and  
storing the received information about the one or more member peers of the peer group;

25 wherein the stored information about the one or more member peers is accessible by entities on the network to discover the one or more member peers of the peer group.

64. The carrier medium as recited in claim 63, wherein the information about each of the one or more member peers includes information configured for use in accessing the

30

particular member peer to communicate directly with the particular member peer via the network.

- 5    65.    A carrier medium comprising program instructions, wherein the program instructions are computer-executable to implement:

accessing a peer group name server coupled to a network, wherein the peer group  
name server comprises information about a peer group comprising one or  
10       more peers as member peers of the peer group, wherein the one or more  
peers reside on one or more network nodes coupled to the network; and

discovering the peer group from the information about the peer group on the peer  
group name server;

15       wherein the information about the peer group includes information configured for  
use in joining the peer group.

66.    The carrier medium as recited in claim 65, wherein the program instructions are  
20       further computer-executable to implement joining the discovered peer group to become a  
member peer of the peer group.

67.    The carrier medium as recited in claim 65, wherein the peer group name server  
further comprises information about the one or more member peers of the peer group,  
25       wherein the program instructions are further computer-executable to implement  
discovering the one or more member peers of the peer group from the information about  
the one or more member peers of the peer group on the peer group name server.

68.    The carrier medium as recited in claim 67, wherein the information about each of  
30       the one or more member peers includes information configured for use in accessing the



particular member peer to communicate directly with the particular member peer via the network.

69. The carrier medium as recited in claim 68, wherein the program instructions are further computer-executable to implement accessing a first member peer of the one or more member peers of the peer group using the information about the first member peer.

70. A carrier medium comprising program instructions, wherein the program instructions are computer-executable to implement:

a first peer in a peer-to-peer network accessing a peer group name server in the peer-to-peer network, wherein the peer group name server comprises information about one or more entities in the peer-to-peer network, wherein the information comprises, for each of the one or more entities, a symbolic name and an associated entity identifier of the entity, wherein the entity identifier is configured for use in establishing a connection with the particular entity in the peer-to-peer network;

the first peer sending a symbolic name of an entity to the peer group name server;

the peer group name server locating a copy of the symbolic name in the information about the one or more entities to determine an entity identifier associated with the symbolic name; and

the peer group name server sending the entity identifier associated with the symbolic name to the first peer.